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No. XXX.

Observations on those Processes of the Ethmoid Bone which originally form the Sphenoidal Sinuses. By C. Wistar, M. D. President of the Society, Professor of Anatomy in the University of Pennsylvania.—Read, Nov. 4, 1814.

IT had been long believed that the Sinuses, or cavities in the body of the Os Sphenoides, were exclusively formed by that bone, when Winslow suggested that a small portion of the orbital processes of the Ossa Palati contributed to their formation.*

Many years after Winslow's publication, Monsieur Bertin described two bones which form the anterior sides of those sinuses, and contain the foramina by which they communicate with the nose.†

These bones he denominates "Cornets Sphenoidaux," and states that they are most perfect and distinct between the ages of four years and of twenty; that they are not completely formed before this period, and that after it, they appear like a part of the Sphenoidal bone.—According to his account they are laminae of a triangular form, and are origi-

* In his description of the Ossa Palati, printed in the Memoirs of the Academy of Sciences, for 1720.

† See Memoirs of the Academy of Sciences, for 1744.

nally in contact with the anterior and inferior surface of the body of the Os Sphenoides, so that they form a portion of the surface of the cavity of the nose.—He believed, that as they increase in size, they become convex and concave, and present their concave surfaces to the body of the sphenoidal bone, which also becomes concave, and presents its concavity to those bones; thus forming the sinuses.

This account of Mr. Bertin has been adopted by Sabatier, and also by Boyer, who has improved it by the additional observation, that these triangular bones are sometimes united to the Ethmoid, and remain attached to that bone when it is separated from the Os Sphenoides. Bichat and Fife have confirmed the description of Boyer.

The specimens of Ethmoid and Sphenoid bones, herewith exhibited to the society, will demonstrate, that in certain subjects, about two years of age, there are continued from the posterior part of the cribriform plate of the Ethmoid, *two Hollow Triangular Pyramids*, which, when in their proper situation, receive between them the azygos process of the Os Sphenoides.—(See Plate X. Figures 1, 2, 3. with the explanation.)

The internal side of each of these pyramids applies to the aforesaid azygos process; the Lower Side of each forms part of the upper surface of the Posterior Nares; the External Side at its basis is in contact with the Orbital Process of the Os Palati. The base of each Pyramid forms also a part of the surface of the Posterior Nares, and contains a foramen which is ultimately the opening into the Sphenoidal Sinus of that side.

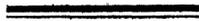
In the Sphenoidal Bones which belong to such Ethmoids as are above described, there are no cells or Sinuses; for the Pyramids of the Ethmoid bones occupy their places. The azygos process which is to become the future septum between the Sinuses, is remarkably thick, but there are no cavities or Sinuses in it.

The sides of the Pyramids which are in contact with this process are extremely thin, and sometimes have irregular

foramina in them, as if their osseous substance had been partially absorbed.* That part of the external side of the Pyramid which is in contact with the orbital process of the Os Palati is also thin, and sometimes has an irregular foramen, which communicates with the cells of the aforesaid orbital process.

Upon comparing these perfect specimens of the Ethmoid and Sphenoidal Bones of the subject about two years of age, with the Os Sphenoides of a young subject who was more advanced in years, it appears probable, that the azygos process and the sides of the Pyramid applied to it, are so changed, in the progress of life, that they simply constitute the septum between the Sinuses; that the External Side of the Pyramid is also done away, and that the Front Side and the Basis of the Pyramid only remain; constituting the Cornets Sphenoidaux† of M. Bertin.

If this be really the case, the origin of the Sphenoidal Sinuses is very intelligible.



Explanation of the Figures in Plate X. referred to above.

FIG. I.

Represents the upper surface, or cribriform plate, of the Ethmoid Bone.

a. Crista Galli.

b b b b. Cribriform Plate.

c. Surface denominated Os Planum.

d d. Hollow Triangular Pyramids.

e. Space between the Pyramids for receiving the Azygos Process of the Os Sphenoides.

* See *e*, fig. 3.

† “Cornet” is the word applied by several French anatomists to the Ossa Turbinata of the nose; they seem to have intended to express by it a convoluted lamina or plate of bone.

FIG. II.

A Lateral View of the Bone.

- a.* Christa Galli.
- c.* Os Planum.
- d.* Triangular Pyramid.

FIG. III.

The Bone Inverted.

- a.* The Nasal Plate of the Ethmoid Bone, which constitutes the upper portion of the Septum of the Nose.
- g g.* Those portions of the Ethmoid which are called Superior Turbinate Bones.
- ff.* The Cellular Lateral portions of the Bone.
- dd.* The Triangular Pyramids.
- e.* Space between the Pyramids for the Azygos Process of the Os Sphenoides—a foramen on the internal side of one of the Pyramids.

The fine drawing of the Ethmoid Bone for this plate, was done by my friend M. Lesueur, whose talents are so conspicuous in the plates attached to Peron's "Voyage de Découvertes aux Terres Australes."

Fig. 1.

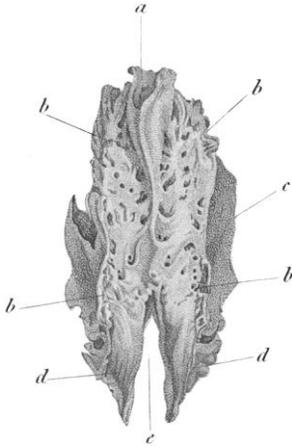


Fig. 2.

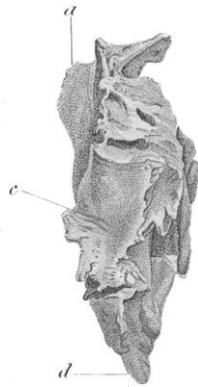


Fig. 3.

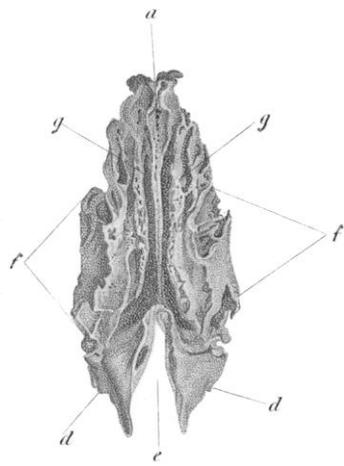


Fig. 4.

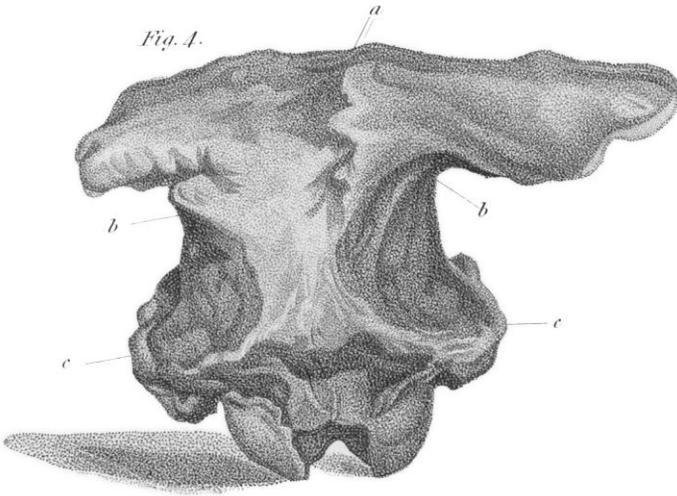


Fig. 5.

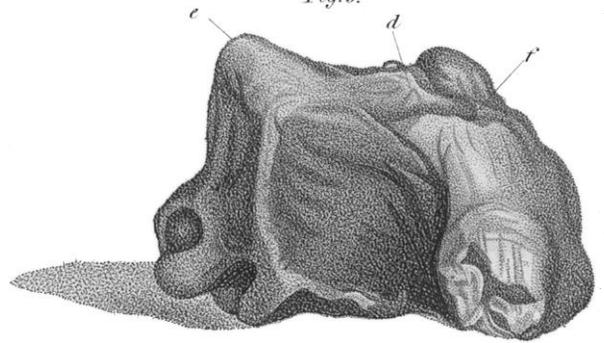


Fig. 6.

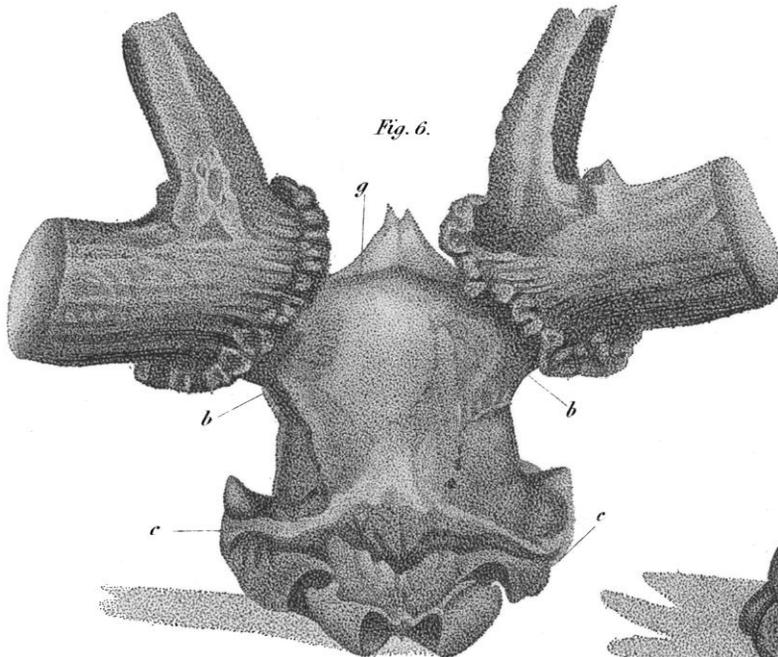


Fig. 7.

